Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA _{1c} outcome	BP outcome
Clancy et al., 2003 ^{15–17}	RCT	6 mo	2-h sessions; monthly over 6 mo	Intervention: 59 Control: 61	Age > 18 yr; type 2 diabetes with HbA, > 8.5% at most recent evaluation	21.7	Trust in physician (scale), ADA process-of-care indicators, patient care assessment tool, HbA ₁₋ , lipid profiles	At 6 mo: 9.513% in intervention and 9.714% in control; difference not significant	Not measured
Clancy et al., 2007 ^{18,19} and 2008 ²⁰	RCT	12 mo	2-h sessions; monthly over 12 mo	Intervention: 96 Control: 90	Age > 18 yr; poorly controlled type 2 diabetes (HbA, > 8%)	28	Emergency department visits, inpatient stays, primary and specialty outpatient visits, total charges, HBA, testing, lipid profiles, adherence to ADA guidelines, cancer screens	Not measured; instead study looked at no. of patients who received HbA, testing	Not measured
Cohen et al., 2011 ²¹	RCT	6 mo	2-h sessions over 6 mo; weekly for 4 wk, then monthly for 5 mo	Intervention: 50 Control: 49	Veterans with type 2 diabetes; HbA ₁ , > 7.0%, LDL cholesterol > 100 mg/dL (or > 70 mg/dL if coronary artery disease present); BP > 130/80 mm Hg	Intervention: 100 Control: 96	HbA,, LDL cholesterol, BP, goal attainment of these values, diabetes self-care behaviour, prescribing (medications) between groups, no. of visits with primary care provider	Target goals reached by 40.5% in intervention v. 20.4% in control $(p = 0.03)$; patients in intervention group had higher odds of attaining HbA _{1c} goals	Target systolic BP (< 130 mm Hg) reached by 50% in intervention and 32.7% in control (p = 0.015); patients in intervention group had higher odds of attaining systolic BP goals
Edelman et al., 2010 ²²	RCT	12.8 mo	90–120 min per session; every 2 mo over 12 mo; total 7 sessions	Intervention: 133 Control: 106	Veterans with poorly controlled diabetes (HbA ₁ , ≥ 7.5%) and hypertension (systolic BP > 140 mm Hg, diastolic BP > 90 mm Hg); type of diabetes not specified	Intervention: 95.5 Control: 96.2	Systolic and diastolic BP, HbA,, self-reported medication adherence	Mean decrease 0.8% in intervention and 0.5% in control; difference not significant (p = 0.159)	Mean decrease in systolic BP was 13.7 mm Hg in intervention v. 6.4 mm Hg in control (p = 0.011)
Naik et al., 2011 ²³	RCT	12 mo	60-min sessions; 4 sessions; every 3 wk over 3 mo	Intervention: 45 Control: 42	Veterans aged 50–90 yr with a primary care provider; type 2 diabetes; mean HbA ₁ , 7.5% 6 mo before study	Unknown	HbA ₁ , diabetes self- efficacy scale, diabetes specific knowledge and understanding scale	At 1 yr: $8.05\% \pm 1.40\%$ in intervention v. $8.64\% \pm 1.39\%$ in control ($p = 0.05$)	Not measured

Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA_{lc} outcome	BP outcome
Rygg et al., 2012 ²⁴	RCT	12 mo	5-h sessions; every 2 wk over 6 wk, or every 3 wk over 9 wk, depending on site	Intervention: 73 Control: 73	Age > 18 yr; type 2 diabetes; consultation with general practitioner in past 3 yr	"Approxi- mately 50%"	HbA _{1,r} patient activation, diabetes knowledge, BP, weight, BMI, total and HDL cholesterol, triglycerides, creatinine, oral glucose-lowering medication, visits with health care personnel in past 3 mo, satisfaction with diabetes treatment, problem areas in diabetes, EQ-VAS, SF-36 (physical and mental health domains), selfmanagement (diet, foot care and blood glucose)	(p = 0.432), except in	intervention: 82.6 (10.3),
Sadur et al., 1999 ²⁵	RCT	12 mo	2-h sessions; monthly over 6 mo	Intervention: 82 Control: 74	Age 16–75 yr; type 1 and 2 diabetes; HbA ₁ , > 8.5%, or no HbA ₂ , test performed in previous yr	Intervention: 58.8 Control: 55.7	HbA,, self-reported changes in self-care practices, self-efficacy, satisfaction, utilization of inpatient and outpatient health care	≥ 5 mo after randomization: 8.18% in intervention and 9.33% in control (p < 0.0001)	Not measured
Schillinger et al., 2009⁵⁵	3-arm RCT	12 mo	90-min sessions; monthly over 9 mo	Intervention: 104 Control (usual care): 108 3rd arm (wkly automated telephone support with nurse follow-up): 112	Adult patients with type 2 diabetes; uninsured with high school education or less; ≥ 1 primary care visit in past yr; recent HbA,, ≥ 8.0%	Intervention: 36.3 Control: 44.7	1-yr changes in structure (patient assessment of chronic Illness care), communication processes (interpersonal processes of care) and outcomes (behavioural, functional and metabolic)	No difference between groups (9.0% \pm 2.0% in both groups; $p =$ 0.3)	Systolic BP 138.9 \pm 20.3 mm Hg in intervention and 141.5 \pm 23.9 mm Hg in usual-care group (ρ = 0.1); diastolic BP 75.5 \pm 11.3 mm Hg in intervention and 78.5 \pm 18.5 mm Hg in usual-care group (ρ = 0.08)
Taveira et al., 2010 ²⁷	RCT: feasibility	4 mo	2-h sessions; weekly over 4 wk	Intervention: 58 Control: 51	Veterans aged ≥ 18 yr with type 2 diabetes; HbA ₁ , 7%–9% in previous 6 mo	Intervention: 91.4 Control: 100	HbA _{1,7} BP (systolic < 130 mm Hg, diastolic < 80 mm Hg), lipids, tobacco use	Target reached by 40.4% in intervention and 21.6% in control; absolute mean change -0.9 ± 1.6 in intervention and 0.0 ± -1.5 in control	Target systolic BP reached by 65.5% in intervention and 39.9% in control; absolute mean change -7.3 ± 20.3 mm Hg in intervention and -1.7 ± -19.6 mm Hg in control. Target diastolic BP reached by 65.5% in intervention and 68.6% in control; absolute mean change -6.5 ± 10.0 mm Hg in intervention and 1.0 ± 10.8 mm Hg in control

Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA _{1c} outcome	BP outcome
Taveira et al., 2011 ²⁸	RCT	6 mo	90-min sessions; weekly for 4 wk, then monthly for 5 mo	Intervention: 44 Control: 44	Veterans with depression and type 1 or 2 diabetes; HbA ₁ , > 6.5% in previous 6 mo	Intervention: 100 Control: 95.5	HbA _{1,} < 7% at 6 mo, adherence to ADA guidelines (systolic BP < 130 mm Hg, diastolic BP < 80 mm Hg), total, LDL and HDL cholesterol, tobacco cessation, change in 10- yr coronary event risk at 6 mo, depression symptoms	7.4% \pm 1.2% in intervention v. 8.4% \pm 2.0% in control group (p < 0.05)	Systolic BP 123.4 \pm 12.3 mm Hg in intervention and 127.0 \pm 17.3 mm Hg in control (p < 0.05 from baseline)
Trento et al., 2002, ²⁹ 2001 ³⁰ and 2004 ³¹	RCT	4 yr	Duration of session not stated; session every 3 mo	Intervention: 56 Control: 56 (42 in each group at yr 5)	Type 2 diabetes, treated with diet alone or diet and oral hypoglycemic agents; attended diabetes clinic	Intervention: 51.1 Control: 60.7	Weight, fasting blood glucose level, HbA ₁ ,, serum creatine, total and HDL cholesterol, triglycerides, microalbumine: creatinine ratio, diabetesrelated quality of life, knowledge of diabetes, health behaviours, BP, BMI	At 5 yr after randomization: 7.3% \pm 1.0% in intervention and 9.0% \pm 1.6% in control (p < 0.001)	Not measured
Trento et al., 2005 ³²	RCT	3 yr	Duration of session unclear; every 2–3 mo; total 15 sessions over 36 mo	Intervention: 30 Control: 28	Age < 70 yr; type 1 diabetes with onset before 30 yr; insulin started within 1 yr of diagnosis; ≥ 1 yr previous attendance in clinic	Intervention: 61.3 Control: 58.1	Diabetes-related quality of life, knowledge of type 1 diabetes, health behaviours, HbA,, total and HDL cholesterol, microalbumine: creatinine ratio, complications (hypoglycemic episodes [retrospective]), economic analysis	At 3 yr: 7.88% \pm 0.20% in intervention and $8.79\% \pm 1.38\%$ in control ($p = NS$)	Not measured
Wagner et al., 2001 ³³	RCT	2 yr	Half-day sessions; "periodic" (intervals of 3 mo and 6 mo)	Intervention: 278 Control: 429	Age > 30 yr; patients with diabetes (type not specified) using insulin or oral hypoglycemic therapy were "preferentially selected"	Intervention: 56 Control: 51.8	Subscales of SF-36 (general health, physical function, emotional role function, social function and pain), bed disability, restricted-activity days	At 24 mo: no difference between groups (7.9% in both groups; $p = 0.9$)	Not measured

Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA _{1c} outcome	BP outcome
Benedetti et al., 2004 ³⁴	Cohort	6 mo	2-h sessions; frequency unclear	Intervention: 698 Usual care: 1300	Age > 18 yr; type 2 diabetes for ≥ 1 yr	Not stated	Annual HbA ₁ , test, HbA ₁ , < 8.0%, HbA ₁ , < 9.5%, annual LDL cholesterol test, LDL < 130, annual urine protein test, eye and foot exams; BP < 130/85 mm Hg, BP < 140/90 mm Hg, patients > 40 yr taking ASA, self- management goal	in intervention group than in	BP < 140/90 mm Hg "approached significance" (p < 0.06); BP < 130/85 significant (p < 0.05)
Boegner et al., 2008 ³⁵	Cohort	6 mo	Half-day sessions; mean 3 sessions per practice	427	Age > 18 yr; type 2 diabetes > 1 yr	55.3	Self-reported diabetes knowledge and behaviour; weight, BP, HbA,, fasting glycemia, % sedentary, dietary compliance, % using insulin, smoking status, antihypertensive treatment, lipid-lowering therapy, medication (tablets/d)	7.57% ± 1.33% at baseline; 7.41% ± 1.26% after intervention (p < 0.01)	BP "remained stable and approached the French recommendations"
Bray et al., 2005 ³⁶	Feasibility study; convenience sample	12 mo	2-h sessions over 6 mo; total 4 sessions	Intervention: 112 Control: 48	Type 2 diabetes + ≥ 1 of: HbA ₁ , > 7.0%, BP > 135/85 mm Hg or high risk of end- stage organ disease (including retinopathy, neuropathy, nephropathy)	43	Health care provider productivity, billable encounters, documented self-management goals, documented lipid profile, documented ASA use, documented foot exam, average daily encounter rate	8.2% ± 2.6% at baseline; 7.1% ± 2.3% after intervention (p < 0.05 for difference between groups)	Not measured
Culhane- Pera et al., 2005 ³⁷	Cohort	13 mo	3.5-h sessions; monthly for 3 mo, then quarterly; total 7 sessions	Intervention: 39 Refusers: 22 Nonparticipants = 216	Hmong adults with type 2 diabetes	56	HBA _{1.7} BMI, BP, LDL cholesterol, microalbumin:creatinine ratio, self-reported 24-h diet recall and exercise, mental health, foot exams, eye referrals, flu shots and medication intensification	9.46% before and 9.58% after intervention; difference not significant (p = NS)	No significant difference in systolic BP (132.67 mm Hg before and 127.56 after intervention) or in diastolic BP (78.06 mm Hg before and 78.64 mm Hg after intervention)

Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA _{1c} outcome	BP outcome
Desouza et al., 2010 ³⁸	Retrospective chart review	2 yr	90-min session every 3 mo; mean 4 per yr	56	Patients discharged from diabetes clinic; type of diabetes not stated; HbA,, < 7% at time of discharge, with outcome data available every 6 mo for 2 yr	Not stated	HbA ₁ ,, LDL cholesterol, BP	Change from baseline not significant $(p = 0.18)$	Change in systolic BP from baseline: $0.06 \text{ v. } 0.05$ mm Hg ($p = 0.93$); change in diastolic BP from baseilne $-001 \text{ v. } 0$ mm Hg ($p = 0.34$)
Dickman et al., 2012 ³⁹	Before— after quasi- experimental design	4 mo	90-min sessions over 4 mo; frequency not specified	37; divided into language groups (English: 11; Spanish: 15; bilingual: 11)	Age ≥ 18 yr; uninsured patients with income < 200% below federal poverty level; diagnosis of non-insulin- dependent type 2 diabetes or hypertension, or both; HbA ₁ , < 9%; BP < 160/90 mm Hg; "could benefit from enhanced lifestyle education, self- management support and medication adherence support"	34	Patient and staff satisfaction, self-management of exercise (min/wk), identification and achievement of measurable goal	7.25% at baseline, 7.0% after intervention; 89% had improved outcomes	Systolic BP 174 mm Hg at baseline and 144 mm Hg after intervention; 100% of patients had improved outcomes
Dontje et al., 2011 ⁴⁰	Cohort	33 mo	90-min sessions; frequency unclear (possibly monthly); patients partici- pated in 1–27 sessions	51; divided into 2 groups according to no. of visits attended (1–2 or ≥ 3)	Adult patients with type 1 ($n = 4$) and type 2 diabetes; HbA _{1c} \geq 8%	35	Improved documentation of guideline-concordant care for patients with diabetes, enhance self-management, facilitate communication regarding chronic care management	Improvements in both groups	Improvements in both groups
Gutierrez et al., 2011 ⁴¹	Exploratory and descriptive	17 mo (mean follow-up 9.5 mo)	Duration of session not specified; sessions conducted every 2 wk; total 36	Intervention: 50 Usual care: 53	Age ≥ 18 yr; Hispanic patients with poorly controlled type 2 diabetes (HbA ₁ , ≥ 7%)	Unknown	HbA,, quality of life, diabetes knowledge, immunizations, ASA use, foot and ophthalmology exams, microalbumin: creatinine ratio, lipid measurement, LDL cholesterol	Mean decrease 1.19% in intervention ($p < 0.01$) and 0.67% in control ($p = 0.02$)	Not measured

Study	Study design	Study duration	Duration and frequency of group medical visits	No. of patients	Study population	% male	Outcomes measured	HbA _{1c} outcome	BP outcome
Kirsh et al., 2007⁵	Quasi- experimental with concurrent non- randomized controls	Unclear	60–120 min per session; frequency not specified; patients partici- pated in 1–7 sessions	Intervention: 44 Usual care: 35	Veterans with type 2 diabetes + ≥ 1 of: HbA _{1,} > 9%, systolic BP > 160 mm Hg and LDL cholesterol > 130 mg/dL	97.7	Systolic BP, HbA _{1,r} , LDL cholesterol, ASA use	Mean decrease after intervention 1.4% (95% CI 0.8%–2.1%) (p < 0.001)	Mean decrease in systolic BP 16.0 mm Hg (95% CI 9.7–22.3) (ρ < 0.001)
Loney- Hutchinson et al., 2009 ⁴²	Unclear	18 mo	60-min sessions; monthly since July 2007	66	HbA ₁ , persistently > 10%; type of diabetes not specified; not receiving care in diabetes clinic for ≥ 1 yr	Unknown	BP, HbA _{1e} , LDL cholesterol	Mean decrease from 12.1% to 8.3% at 12 mo	% who achieved BP control increased from 15% at baseline to 38%
Mallow et al., 2011 ⁴³	Retrospective	27 mo	Not specified	Intervention: 53 Usual care: 58	Age > 18 yr; uninsured patients with diabetes (type not specified) receiving care at a free clinic	26.1	Depression score, weight, BMI, HbA _{1,r} , blood glucose, creatinine, microalbumin, systolic BP, diastolic BP, total, HDL and LDL cholesterol, triglycerides	No significant change	Mean systolic BP 126.83 \pm 18.31 mm Hg after intervention; mean decrease 5.49 (95% CI 0.443–10.539) mm Hg ($p = 0.03$)
Pieber et al., 1995 ⁴⁴	Cohort	6 mo	90–120 min per session; every wk over 4 wk	Intervention: 53 Usual care: 55	Non-insulin dependent, type 2 diabetes	Intervention: 42 Control: 47	Weight, BMI, HbA,,, serum cholesterol, serum triglycerides, systolic BP, diastolic BP, self- monitoring glycosuria, footcare practices, diabetes-related knowledge, medication intensity	Decreased from 8.57% to 8.11% (p < 0.05)	At 6 mo: systolic BP 144 ± 21 mm Hg in ntervention v. 150 ± 24 mm Hg in control (p = 0.05)
Raballo et al., 2012 ⁶⁵	Propositional analysis: RCT cohort	2 yr	40–50 min per session; every 2–3 mo (type 1 diabetes) or 3–4 mo (type 2 diabetes) over 2 yr (program could be repeated ad libitum)	Intervention: 120 Control: 121	Type 1 or type 2 diabetes	Type 2 diabetes: Intervention: 36 Control: 51	Patient perceptions of group care v. usual care, patient locus of control, range of concepts regarding diabetes, patient attitudes to group care	No significant difference among patients with type 2 diabetes (7.6% ± 1.0% in intervention and 8.0% ± 1.6% in control)	Not measured

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References*

- 5. Kirsh S, Watts S, Pascuzzi K, et al. Shared medical appointments based on the chronic care model: a quality improvement project to address the challenges of partients with diabetes with high cardiovascular risk. Qual Saf Health Care 2007;16:349-53.
- 15. Clancy DE, Brown S, Magruder K, et al. Group visits in medically and economically disadvantaged patients with type 2 diabetes and their relationships to clinical outcomes. Top Health Inf Manage 2003;24:8-14.
- 16. Clancy DE, Cope D, Magruder K, et al. Evaluating group visits in an uninsured or inadequatly insured patient population with uncontrolled type 2 diabetes. Diabetes Educ 2003;29:292-302.
- 17. Clancy DE, Cope D, Magruder K, et al. Evaluating concordance to American Diabetes Association standards of care for type 2 diabetes through group visits in an uninsured or inadequately insured patient population. Diabetes Care 2003;26:2032-6.
- 18. Clancy DE, Yeager D, Huang P, et al. Further evaluating the acceptability of group visits in an uninsured or inadequately insured patient population with uncontrolled type 2 diabetes. Diabetes Educ 2007;33:309-14.
- 19. Clancy DE, Huang P, Okonofua E, et al. Group visits: promoting adherence to diabetes guidelines. J Gen Intern Med 2007;22:620-4.
- 20. Clancy DE, Dismuke C, Magruder K, et al. Do diabetes group visits lead to lower medical care charges? Am J Manag Care 2008;14:39-44.
- 21. Cohen LB, Taveira T, Khatana S, et al. Pharmacist-led shared medical appointments for multiple cardiovascular risk reduction in patients with type 2 diabetes. Diabetes Educ 2011;37:801-12.
- 22. Edelman D, Fredrickson S, Melnyk S, et al. Medical clinics versus usual care for patients with both diabetes and hypertension: a randomized trial. Ann Intern Med 2010;152:689-96.
- 23. Naik AD, Palmer N, Petersen N, et al. Comparative effectiveness of goal setting in diabetes mellitus group clinics: randomized clinical trial. Arch Intern Med 2011;171:453-9.
- 24. Rygg LØ, Rise M, Gronning K, et al. Efficacy of ongoing group based diabetes self-management education for patients with type 2 diabetes mellitus. A randomized control trial. Patient Educ Couns 2012;86:98-105.
- 25. Sadur CN, Moline N, Costa M, et al. Diabetes management in a health maintenance organization. Efficacy of care management using cluster visits. Diabetes Care 1999;22:2011-7.
- 26. Schillinger D, Handley M, Wang F, et al. Effects of self-management support on structure, process and outcomes among vulnerable patients with diabetes: a three-arm practical clinical trial. Diabetes Care 2009;32:559-66.
- 27. Taveira TH, Friedmann P, Cohen, et al. Pharmacist-led group medical appointment model in type 2 diabetes. Diabetes Educ 2010;36:109-17.
- 28. Taveira TH, Dooley A, Cohen L, et al. Pharmacist-led group medical appointments for the management of type 2 diabetes with comorbid depression in older adults. Ann Pharmacother 2011;45:1346-55.
- 29. Trento M, Passera P, Baiardi M, et al. Lifestyle intervention by group care prevents deterioration of type II diabetes: a 4-year randomized controlled clinical trial. Diabetologia 2002;45:1231-9.

- 30. Trento M, Passera P, Tomalino M, et al. Group visits improve metabolic control in type 2 diabetes: a 2-year follow-up. Diabetes Care 2001;24:995-1000.
- 31. Trento M, Passera P, Borgo E, et al. A 5-year randomized controlled study of learning, problem solving ability, and quality of life modifications in people with type 2 diabetes managed by group care. Diabetes Care 2004;27:670-5.
- 32. Trento M, Passera P, Borgo E, et al. A 3-year prospective randomized controlled clinical trial of group care in type 1 diabetes. Nutr Metab Cardiovasc Dis 2005;15:293-301.
- 33. Wagner EH, Grothaus L, Sandhu N, et al. Chronic care clinics for diabetes in primary care: a system-wide randomized trial. Diabetes Care 2001;24:695-700.
- 34. Benedetti R, Flock B, Pedersen S, et al. Improved clinical outcomes for fee-for-service physician practices participating in diabetes care collaborative. Jt Comm J Qual Saf 2004;30:187-94.
- 35. Boegner C, Fontbonne A, Gras Vidal MF, et al. Evaluation of a structured educational programme for type 2 diabetes patients seen in private practice. Diabetes Metab 2008;34:243-9.
- 36. Bray P, Thompson D, Wynn J, et al. Confronting disparities in diabetes care: the clinical effectiveness of redesigning care management for minority patients in rural primary care practices. J Rural Health 2005;21:317-21.
- 37. Culhane-Pera K, Peterson K, Crain A, et al. Group visits for Hmong adults with type 2 diabetes mellitus: a pre-post analysis. J Health Care Poor Underserved 2005;16:315-27.
- 38. Desouza CV, Rentschler L, Haynatzki G. The effect of group clinics in the control of diabetes. Prim Care Diabetes 2010;4:251-4.
- 39. Dickman K, Pintz C, Gold K, et al. Behavior changes in patients with diabetes and hypertension after experiencing shared medical appointments. J Am Acad Nurse Pract 2012;24:43-51.
- 40. Dontje K, Forrest K. Implementing group visits: Are they effective to improve diabetes self-management outcomes? J Nurse Pract 2011;7:571-7.
- 41. Gutierrez N, Gimple N, Dallo F, et al. Shared medical appointments in a residency clinic: an exploratory study among Hispanics with diabetes. Am J Manag Care 2011;17:e212-4.
- 42. Loney-Hutchinson LM, Provilus AD, Jean-Louis G, et al. Group visits in the management of diabetes and hypertension: effects on gylemic and blood pressure control. Curr Diab Rep 2009;9:238-42.
- 43. Mallow JA. Diabetes group medical visits and biophysical outcomes of care in uninsured persons with diabetes [dissertation]. Morgantown (WV): West Virginia University; 2011.
- 44. Pieber TR, Holler A, Siebenhofer A, et al. Evaluation of a structured teaching and treatment programme for type 2 diabetes in general practice in a rural area of Austria. Diabet Med 1995;12:349-54.
- 45. Raballo M, Trevisan M, Trinetta A, et al. A study of patients' perceptions of diabetes care delivery and diabetes: Propositional analysis in people with type 1 and 2 diabetes managed by group or usual care. Diabetes Care 2012;35:242-7.

^{*}Reference numbering matches that in the full article.